

REMARKS

In response to the Final Office Action dated November 10, 2008, Applicants herewith provide the following response. All amendments made to the claims are undertaken in an effort to further prosecution of the case and minimize issues for appeal. Applicants respectfully request entry of this timely filed response. Claims 1, 7, 8, 12, 14, 16, 17, 18, 20, 21 and 29 to 42 are pending.

1. Rejection of Claims 1, 7, 8, 13, 14, 16, 17, 20, 22, 26 and 27 Under 35 U.S.C. § 103(A)

Claims 1, 7, 8, 13, 14, 16, 17, 20, 22, 26 and 27 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over United States Published Application U.S. 2002/0130326 ("Tamura et al.") in view of United States Patent 6,069,676 ("Yuyama et al."). Applicants respectfully submit that claims 1, 7, 8, 13, 14, 16, 17, 20, 22, 26 and 27 are not rendered obvious to the attempted combination of references for the following reasons.

As stated previously, claims 22, 26 and 27 have been previously cancelled and Applicants note that the rejections in the Final Office Action are moot for these claims.

Claim 1 relates to an array. Claim 1 recites the features of a plurality of light emitting devices disposed on a transparent substrate, the transparent substrate having an upper surface that contacts the light emitting device, a lower surface distal from the light emitting device and a plurality of side surfaces, each of the side surfaces being substantially perpendicular to the upper surface, and at least one photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices.

Claim 14 relates to a method for forming an array, comprising the steps of forming a plurality of light emitting devices disposed on a transparent substrate, said transparent substrate having an upper surface contacting the light emitting device, a lower surface distal form the light emitting device and at least one side

surface substantially perpendicular to said upper surface of the transparent substrate and forming a photodetector at the lower surface of the transparent substrate for detecting light emitted through the transparent substrate.

Applicants thank the Examiner for clarifying what components in the Tamura et al. reference are the supposed upper surface, lower surface and side surfaces. Applicants note, however, that Tamura et al. (as admitted by the Final Office Action), still does not disclose or suggest any configuration of a photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting device.

The attempted addition of the Yuyama et al. reference does not cure the critical defects of the Tamura et al. reference. The Yuyama et al. reference discloses that LED's are heated when they are operated in close condition to other components. This overheating, in fact, limits the overall efficiency of the units and is a primary concern when designing a configuration with LED's. To that end, the Yuyama et al. reference, in all configurations, discloses an air gap that is placed between an LED arrangement and an upper surface substrate. The air gap is present to prevent the direct contact, which the Yuyama et al. reference itself admits has detrimental impacts on LED efficiency. Any use of the Yuyama et al. reference in an attempted combination, therefore, would require the use of an air gap, as this is a primary concern as discussed in the Yuyama et al. reference.

The configurations and methods provided in claims 1 and 14 do not recite an air gap, but rather a configuration and method that the Yuyama et al. reference teaches away from that of at least one photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices. This compact arrangement is never disclosed or suggested in the Yuyama et al. reference because it is directly antithetical to the Yuyama et al. reference concerns of LED efficiency.

Applicants respectfully submit that for this rejection, and others that follow, a person of skill in the art would not have used the photodetector of the Yuyama et al. reference in the method and configuration provided where at least one

photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices because the Yuyama et al. reference, through its disclosure and configurations provided, teaches away from such a combination.

The Office Action rejects the above specified claims as being obvious under 35 U.S.C. §103(a). Moreover, as provided later in this paper, the Office Action rejects several sets of claims under 35 U.S.C. §103(a). Applicants respectfully traverse all of these rejections on several grounds. Requirements for making a rejection under 35 U.S.C. §103(a) have been clearly delineated by case precedent. In KSR International Co. v. Teleflex Inc. et al., the United States Supreme Court stated that the determination of obviousness under 35 U.S.C. §103(a) must be objective. To that end:

- 1) differences between the prior art and claims at issue must be ascertained by the examiner, and
- 2) the Office Action must discuss and analyze the level of ordinary skill of a person practicing the invention.

Specifically regarding point two (2), the Office Action must discuss the level of ordinary skill of a person practicing the invention because if the actual application is beyond his or her skill level, the technique would not be obvious as provided in Sakraida v. AG Pro, Inc. 425 U.S. 273 (1976).

The Office Action has not discussed the level of ordinary skill of a person practicing the invention. To that end, the rejection fails the required tests for determination of obviousness and the rejection should be withdrawn.

In United States v. Adams, 383 U.S. 39, 40 (1966), the United States Supreme Court further stated that when prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious.

In the present application, the cited references teach away from such a combination, and as such, the subject matter of the claims of the present application would not have been obvious to the identified references. A person of skill in the art would not have combined the references as cited in the Office Action.

Furthermore, as provided in KSR, to facilitate review the Office Action must provide the interrelated teachings of patents as well as the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis must be made explicit.

The Office Action does not provide such an explicit analysis, therefore the rejection should be withdrawn.

Lastly, a fact finder should be aware, or course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon ex post reasoning.
Graham v. John Deere Co. of Kansas City, 383 U.S. 1 (1966).

The Office Action improperly uses hindsight in its arguments. Only conclusory statements are used in the rejections provided.

Claims 7, 8 and 13 depend from claim 1 and therefore include all of the features provided in independent claim 1. Claims 7, 8 and 13 are therefore patentable for at least the reasons provided above in relation to claim 1.

Claims 16, 17, and 20 depend from claim 14 and therefore include all of the features provided in independent claim 14. Claims 16, 17 and 20 are therefore patentable for at least the reasons presented above in relation to claim 14.

2. Rejection of Claim 18 Under 35 U.S.C. 103(A)

Claim 18 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Tamura et al. reference in view of the Yuyama et al. reference and further in view of United States Patent Number 7,026,597 ("Cok").

Applicants respectfully submit that claim 18 is not rendered obvious to the attempted combination of references for the following reasons.

Claim 18 ultimately depends from claim 14 and therefore includes all of the features of claim 14, including the feature of a method of forming at least one photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices.

The deficiencies of the Tamura et al. and Yuyama et al. references, discussed above, are applicable to this rejection. The Tamura et al. and Yuyama et al. references do not disclose or suggest a method for forming at least one photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices. As provided above, the Tamura et al. reference, as admitted by the Final Office Action, does not provide this method step. The Yuyama et al. reference, in fact, teaches away from any such configuration or method to produce this configuration as Yuyama et al. always provide an air gap to satisfy the known and admitted problem of LED overheating and the consequent loss of efficiency.

The attempted addition of the Cok reference does not cure the critical defects of the Tamaura et al. and Yuyama et al. references. The Cok reference allegedly describes an OLED display with integrated elongated photosensor. The Final Office Action merely uses the Cok reference to allegedly teach that photodetectors may be formed on an edge of a display.

As the Cok reference does not disclose or suggest a configuration or a method including the steps of providing an arrangement wherein at least one photodetector is arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices, Cok is similarly deficient as the Tamura et al. and Yuyama et al. references. Cok does not disclose or suggest any surface proximal positioning.

As the attempted combination of references does not disclose or suggest the features of claim 18, and in fact the references themselves teach away from such a combination, Applicants respectfully request withdrawal of the rejection to claim 18.

3. Rejection of Claims 12 and 21 Under 35 U.S.C. 103(A)

Claims 12 and 21 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tamura et al. in view of Yuyama et al. and further in view of United States Patent Number 6,424,326 (“Yamazaki et al.”). Applicants respectfully submit that claims 12 and 21 are not rendered obvious to the attempted combination of references for the following reasons.

Claim 21 ultimately depends from claim 14 and therefore includes all of the features of claim 14. Claim 12 ultimately depends from claim 1 and therefore includes all of the features of claim 1.

The deficiencies of the Tamura et al. and Yuyama et al. references, as discussed above, are applicable to this rejection, including the lack of a configuration or method to provide a configuration of at least one photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices. The Yuyama et al. reference, in fact, teaches away from such combinations, as described above.

The Yamazaki et al. reference allegedly relates to a semiconductor display device having a display portion and a sensor portion. Title. The Yamazaki et al. reference is used by the Final Office Action to recite a display detecting brightness and a memory array for storing a compensation factor for each of the plurality of light emitting devices. The Yamazaki et al. reference, however, does not disclose or suggest a configuration or method to provide a configuration of at least one photodetector arranged on the lower surface of the transparent substrate for detecting light emitted from the light emitting devices. As a result, all three configurations are deficient in this regard. Applicants respectfully request withdrawal of the rejection to claims 12 and 21.

4. Rejection of Claims 29 to 31, 33 and 34 Under 35 U.S.C. 103(A)

Claims 29 to 31, 33 and 34 were rejected under 35 USC §103(a) as being unpatentable over Henmi et al. in view of Yuyama et al. Applicants respectfully submit that claims 29 to 31, 33 and 34 are patentable for the following reasons.

Amended claim 29 relates to an array comprising a plurality of light emitting devices formed on a surface of a transparent substrate the transparent substrate having an upper surface that contacts the light emitting device, a lower surface distal from the light emitting device and a plurality of side surfaces; and at least two photodetectors arranged on an opposite surface of the transparent substrate for detecting light emitted from the light emitting devices. Support for the amendment to claim 29 is found, for example, in paragraph 0026 of the published application.

Amended claim 33 relates to an array, comprising a plurality of light emitting devices disposed over a substrate having an upper surface that contacts the light emitting device, a lower surface distal from the light emitting device and a plurality of side surfaces, and a photodetector that detects light emitted through the substrate from the light emitting device, wherein the photodetector is on the lower surface and wherein at least one light emitting device comprises an OLED, wherein the photodetector is positioned on the upper surface. Support for the amendment to claim 33 is found, for example, in paragraph 0020 of the published application.

The defects of the Yuyama et al. reference are discussed above and are applicable to this rejection.

The Henmi et al. reference allegedly relates to a device for and method of driving luminescent display panels. Title. In Figure 4, the Henmi et al. reference merely puts a “photoelectric conversion means” on a side of a transparent substrate 11 or at a same side of a substrate as a luminescent element (See Figs. 15 to 18). In this regard, the Henmi et al. reference does not disclose or even suggest the configuration provided in amended claim 29, namely that of having at least two photodetectors. Henmi et al. only provide for a single photodetector, different than the configuration in amended claim 29. The Henmi et al. reference is also deficient in not providing any configuration wherein

photodetectors are placed on the upper surface of the substrate, as recited in claim 33, as well as in claims 36 and 39.

As a result of the deficiencies described above, Applicants respectfully request withdrawal of the rejection to claims 29 and 33.

Claims 30 and 31 depend from claim 29, therefore claims 30 and 31 incorporate the features of claim 29. Claims 30 and 31 are patentable for at least the reasons provided above in relation to claim 33.

Claim 34 depends from claim 33, therefore claim 34 incorporates the features of claim 33. Claim 34 is patentable for at least the reasons provided above in relation to claim 33.

5. Rejection of Claim 32 under 35 U.S.C. 103(A)

Claim 32 was rejected under 35 USC §103(a) as being unpatentable over Henmi et al. in view of Yuyama et al. and further in view of Yamazaki et al. Applicants respectfully submit that claim 32 is patentable for the following reasons.

Claim 32 depends from independent claim 29 and therefore includes the features of amended claim 32.

The defects of the Henmi et al., Yuyama et al. and Yamazaki et al. references are discussed above and are applicable to this rejection. The attempted addition of the Yuyama et al. and Yamazaki et al. references to Henmi et al. does not cure the critical defects of the Henmi et al. reference. First, as above, Applicants respectfully traverse the attempted combination of references. Even if the references could be combined, and Applicants do not so admit, the references do not disclose or suggest the features of claim 32, namely at least two photodetectors arranged on an opposite surface of the transparent substrate for detecting light emitted from the light emitting devices.

As a result of the cited references failing to disclose the features of claim 32, Applicants respectfully request withdrawal of the rejection to claim 32.

6. Rejection of Claim 35 under 35 U.S.C. 103(A)

Claim 35 was rejected under 35 USC §103(a) over Henmi et al. in view of Yuyama et al. and further in view of Yamazaki et al. Applicants respectfully submit that claim 35 is patentable for the following reasons.

Claim 35 depends from claim 33 and therefore includes all of the features of amended claim 33.

The defects of the Henmi et al., Yuyama et al. and Yamazaki et al. references are discussed above and are applicable to this rejection. As provided above, the rejection of claim 35 under 35 U.S.C. 103(a) does not meet the standards for a rejection by the Supreme Court. Moreover, the references, even if they could be combined, and the Applicants do not so admit, do not disclose or suggest the features of claim 33, namely that a photodetector is placed upon the upper surface of the substrate.

As the attempted combination of references does not disclose or suggest this configuration, Applicants respectfully request withdrawal of the rejection.

7. Rejection of Claims 36 and 37 Under 35 U.S.C. 103(A)

Claims 36 and 37 were rejected under 35 USC §103(a) as being unpatentable over Henmi et al. in view of Yuyama et al. and further in view of Hunter. Applicants respectfully submit that claims 36 and 37 are patentable for the following reasons.

The defects of the Henmi et al. and Yuyama et al. references are discussed above and are applicable to this rejection.

The Hunter et al. reference relates to an active matrix electroluminescent display device. The Final Office Action merely uses the Hunter et al. reference to disclose use of a PLED display suffering from ageing effects. Applicants respectfully submit that the Hunter et al. reference does not disclose or suggest the configuration provided in claims 36 and 37. As provided above, the rejection of claims 36 and 37 under 35 U.S.C. 103(a), does not meet the standards for a rejection by the Supreme Court. Moreover, the references, even if they could be

combined, and the Applicants do not so admit, do not disclose or suggest the features of claim 36 and 37, namely that of a photodetector that is placed upon the upper surface of the substrate.

As the attempted combination of references does not disclose or suggest this configuration, Applicants respectfully request withdrawal of the rejection.

8. Rejection of Claim 38 Under 35 U.S.C. 103(A)

Claim 38 was rejected under 35 USC §103(a) as being unpatentable over Henmi et al. in view of Yuyama et al. and further in view of Hunter and Yamazaki et al. Applicants respectfully submit that claim 38 is patentable for the following reasons.

Claim 38 depends from claim 36 and therefore includes all of the features of claim 36.

The defects of the Henmi et al., Yuyama et al., Hunter and Yamazaki et al. references are discussed above and are applicable to this rejection.

As provided above, the rejection of claim 38 under 35 U.S.C. 103(a) does not meet the standards for a rejection by the Supreme Court. Moreover, the references, even if they could be combined, and the Applicants do not so admit, do not disclose or suggest the features of claim 38, namely that of a photodetector that is placed upon the upper surface of the substrate.

As the attempted combination of references does not disclose or suggest this configuration, Applicants respectfully request withdrawal of the rejection.

9. Rejection of Claims 39, 40 and 42 Under 35 U.S.C. 103(A)

Claims 39, 40 and 42 were rejected under 35 USC §103(a) as being unpatentable over Henmi et al. in view of Yuyama et al. and further in view of Bawandi et al. Applicants respectfully submit that claims 39, 40 and 42 are patentable for the following reasons.

Amended claim 39 relates to an array, comprising a plurality of light emitting devices disposed over a substrate having an upper surface that contacts the light emitting device, a lower surface distal from the light emitting device and a plurality of side surfaces, and a photodetector that detects light emitted through the substrate from the light emitting device, wherein the photodetector is on the lower surface and wherein at least one light emitting device comprises a QDLED, wherein the photodetector is positioned on the upper surface.

The defects of the Henmi et al. and Yuyama et al. references are discussed above and are applicable to this rejection.

The attempted addition of the Bawendi et al. reference does not cure the critical defects of the references described above. The Bawendi et al. reference allegedly relates to a quantum dot white and colored light emitting diodes. Title. The Office Action merely uses the Bawendi et al. reference to disclose a QDLED display.

As provided above, the rejection of claims 39, 40 and 42 under 35 U.S.C. 103(a), does not meet the standards for a rejection by the Supreme Court. Moreover, the references, even if they could be combined, and the Applicants do not so admit, do not disclose or suggest the features of claim 39, 40 and 42, namely that of a photodetector that is placed upon the upper surface of the substrate.

Applicants respectfully request withdrawal of the rejection to claims 39, 40 and 42.

10. Rejection of Claim 41 Under 35 U.S.C. 103(A)

Claim 41 was rejected under 35 USC §103(a) as being unpatentable over Henmi et al. in view of Yuyama et al. and further in view of Bawandi et al. and Yamazaki et al.

Claim 41 depends from claim 39 and therefore includes all of the features of claim 39, including the feature of a photodetector that is placed upon the upper surface of the substrate.

The defects of the Henmi et al., Yuyama et al., Bawandi et al. and Yamazaki et al. references are discussed above and are applicable to this rejection, including the deficiency of not describing or suggesting a photodetector that is placed upon the upper surface of the substrate.

As provided above, the rejection of claim 41 under 35 U.S.C. 103(a), does not meet the standards for a rejection by the Supreme Court. Moreover, the references, even if they could be combined, and the Applicants do not so admit, do not disclose or suggest the features of claim 41, namely that of a photodetector that is placed upon the upper surface of the substrate.

Applicants respectfully request withdrawal of the rejection of claim 41.

Conclusion

In view of the foregoing, it is respectfully submitted that all pending claims of the present application are now in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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Dated: 5/8/09

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